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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,101	03/26/2004	David J. Baldwin	TI-36751	9594

23494 7590 09/15/2005

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EXAMINER	
CHAPMAN JR, JOHN E	
ART UNIT	**PAPER NUMBER**
2856	

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/811,101	BALDWIN ET AL.
	Examiner	Art Unit
	John E. Chapman	2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3/26/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claim 1 is objected to because of the following informality: In claim 1, line 22 (page 12, line 26) "or" should be changed to --of--. Appropriate correction is required.

2. The following is a quotation of the first and second paragraphs of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
>
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling.

There is insufficient structure recited to support the solder balls sealing the cavity. A glass frit 198 in Fig. 4 is critical or essential to the practice of the invention, but not included in the claim. Without the glass frit, the solder balls would either not seal the cavity 125 or would electrically short the electrodes 185A, 185B and 195, thereby rendering the device inoperative. Accordingly, a glass frit separating the solder balls is critical or essential to sealing the cavity and should be included in the claim. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

4. Claims 7-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is insufficient structure recited to support "thereby sealing the cavity" in claim 7, line 8. Merely to recite bonding the MEMS shell to the substrate does not provide sufficient structure to support a sealed cavity. Rather, sealing the cavity is an additional limitation on the bonding arrangement and such should be made clear in the claim.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 7 and 10-15, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Dunn et al. (5,164,328).

Dunn discloses a MEMS accelerometer comprising a shell 11 having a cavity 15 therein and comprising a capacitive accelerometer 17, wherein the shell 11 is bonded to and electrically coupled to a semiconductor substrate 10 through a bonding arrangement 12, thereby sealing the cavity 15 in view of dielectric sealant 21.

Regarding claim 10, the MEMS shell 1 comprises conductive regions 18.

Regarding claim 12, note solder balls 12.

Regarding claims 13-15, note frit glass 21. See column 3, lines 8-11.

8. Claims 1, 2, 4-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn et al. (5,164,328) in view of Cole (4,736,629).

The only difference between the claimed invention and the prior art consists in using an accelerometer comprising a torsion bar and a pair of electrically conductive paddles. Cole discloses an accelerometer in Fig. 3 comprising a torsion bar 96 and a pair of electrically conductive paddles 102, 104, and Dunn et al. suggests using different types of accelerometers, such as that disclosed in Cole (column 2, lines 23-32). Accordingly, it would have been obvious to use the accelerometer in Fig. 3 of Cole in the MEMS accelerometer of Dunn.

9. Claim 3, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn in view of Cole as applied to claim 2 above, and further in view of Yoshihara et al. (6,313,529).

A plurality of solder balls sealing the cavity would appear to form a sealing bump, as taught by sealing bump 12 of Yoshihara et al.

10. Claims 7 and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshihara et al. (6,313,529).

Yoshihara discloses a MEMS accelerometer comprising a shell 1 having a cavity 13 therein and comprising a capacitive accelerometer 5 in Fig. 1, wherein the shell 1 is bonded to

and electrically coupled to a semiconductor substrate 10 through a bonding arrangement 11 and 12, thereby sealing the cavity 13.

Regarding claim 10, the MEMS shell 1 comprises conductive regions. See column 4, lines 49-52.

Regarding claim 12, note solder balls 11.

Regarding claim 13, note insulating film 7 on sealing bump 12.

11. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al. in view of Dunn et al. (5,164,328).

Regarding claims 14 and 15, the only difference between the claimed invention and the prior art consists in using frit glass to in lieu of insulative film 7 of Yoshihara et al. Dunn et al. teaches using frit glass to form a sealant 21 (column 3, lines 8-11). Accordingly, it would have been obvious to use frit glass in lieu of insulative film 7 of Yoshihara et al. in order to form a sealant to protect the sensing portion 5.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Caillat discloses an accelerometer 3 comprising interconnection balls 11. Goto et al. discloses an accelerometer 20 comprising solder bumps 300.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John E. Chapman whose telephone number is (571) 272-2191. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron

Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John E Chapman
Primary Examiner
Art Unit 2856